Make your own planisphere

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A planisphere is a simple hand-held device which shows a map of which stars are visible in the night sky at any particular time. By rotating a wheel, it shows how stars move across the sky through the night, and how different constellations are visible at different times of year.

Using the materials available on this webpage, you can make your own planisphere out of paper or cardboard.

What you need

- Two sheets of A4 paper, or preferably thin card.
- Scissors.
- A split-pin fastener.
- Optional: one sheet of transparent plastic, e.g. acetate designed for use with overhead projectors.
- Optional: A little glue.

Instructions

Step 1 – Planispheres look slightly different depending on where you live. The planisphere prepared in this document is designed for use anywhere on Earth which is within a few degrees of latitude $48°$N . If you live elsewhere, you can find alternative versions prepared for any other latitude, which are available from

`http://in-the-sky.org/planisphere`

Step 2 – Print the pages of at the back of this PDF file, showing the starwheel and the body of the planisphere, onto two separate sheets of paper, or more preferably onto thin card.

Step 3 – Carefully cut out the star wheel and the body of the planisphere. Also cut out the shaded grey area of the planisphere's body, and if you have it, the grid of lines which you have printed onto transparent plastic. If you are using cardboard, you may wish to carefully score the body of the planisphere along the dotted line to make it easier to fold it along this line later.

Step 4 – The star wheel has a small circle at its center, and the planisphere's body has a matching small circle at the bottom. Make a small hole (about 2mm across) in each. If a paper drill is to hand, these are ideal, otherwise use a compass point and enlarge the hole by turning in a circular motion.

Step 5 – Slot a split-pin fastener through the middle of the starwheel, with the head of the fastener against the printed side of the starwheel. Then slot the body of the planisphere onto the same fastener, with the printed side facing the back of the fastener. Fold the fastener down to secure the two sheets of cardboard together.

Step 6 (Optional) – If you printed the final page of the PDF file onto a sheet of plastic, you should now stick this grid of lines over the viewing window which you cut out from the body of the planisphere.

Step 7 – Fold the body of the planisphere along the dotted line, so that the front of the starwheel shows through the window which you cut in the body.

Congratulations, your planisphere is now ready for use!

How to use a planisphere

Turn the starwheel until you find the point around its edge where today's date is marked, and line this point up with the current time. The viewing window now shows all of the constellations that are visible in the sky.

Go outside and face north. Holding the planisphere up to the sky, the stars marked at the bottom of the viewing window should match up with those that you see in the sky in front of you.

Turn to face east or west, and rotate the planisphere so that the word "East" or "West" is at the bottom of the window. Once again, the stars at the bottom of the viewing window should match up with those that you see in the sky in front of you.

If you printed the grid of altitude and azimuth lines onto transparent plastic, these lines let you work out how high objects will appear in the sky, and in which direction. The circles are drawn at altitudes of 10,20,30...80 degrees above the horizon. For reference, a distance of ten degrees roughly equates to a hand-span at arm's length. The curved lines are vertical lines connecting points on the horizon up to the point immediately above your head. They are drawn in the cardinal directions S,SSE,SE,ESE,E, etc.

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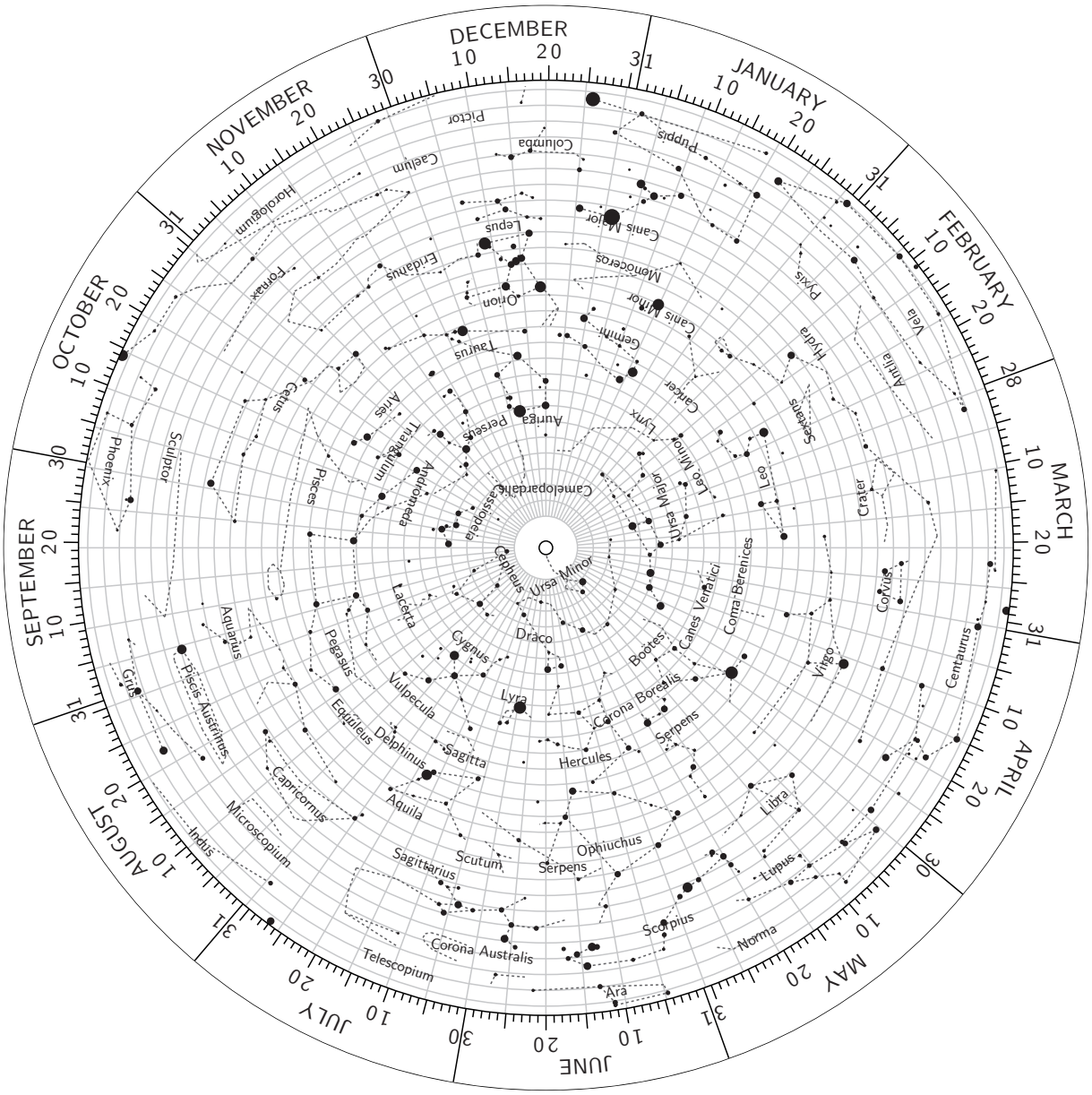
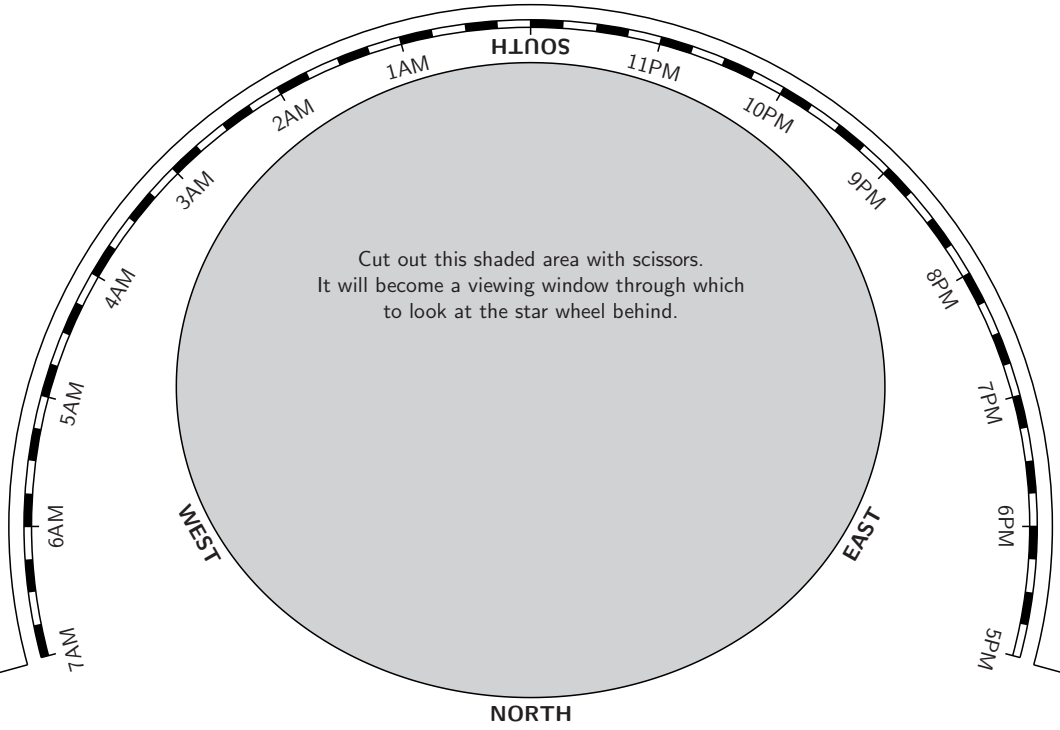


The planisphere's central starwheel, which should be sandwiched inside the folded holder.



PLANISPHERE 48°N

1

Turn the starwheel until you find the point around its edge where today's date is marked, and line this point up with the current time. The viewing window now shows all of the constellations that are visible in the sky.

2

Go outside and face north. Holding the planisphere up to the sky, the stars marked at the bottom of the viewing window should match up with those that you see in the sky in front of you.

3

Turn to face east or west, and rotate the planisphere so that the word "East" or "West" is at the bottom of the window. Once again, the stars at the bottom of the viewing window should match up with those that you see in the sky in front of you.

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Un cherche-étoiles est un accessoire de poche simple fournissant une carte des étoiles visibles dans le ciel à un instant donné. Au moyen d'un disque rotatif, il montre comment les étoiles se déplacent dans le ciel pendant la nuit et la manière dont différentes constellations sont visibles selon la période de l'année.

Dans le ciel nocturne, les constellations accomplissent une révolution autour des pôles célestes toutes les 23 heures et 56 minutes. L'idée de représenter le ciel nocturne à plat sous la forme d'une carte que l'on tourne pour imiter la rotation du ciel date de l'astronome grec de l'Antiquité Hipparque (150 av. J.-C. env.). Le fait que cette rotation s'effectue en quatre minutes de moins que ce que dure une journée signifie que les étoiles se lèvent quatre minutes plus tôt chaque jour, ou une demi-heure plus tôt chaque semaine. Tout au long de l'année, de nouvelles constellations deviennent visibles dans le ciel avant l'aurore, et disparaissent dans le crépuscule en fin de journée.

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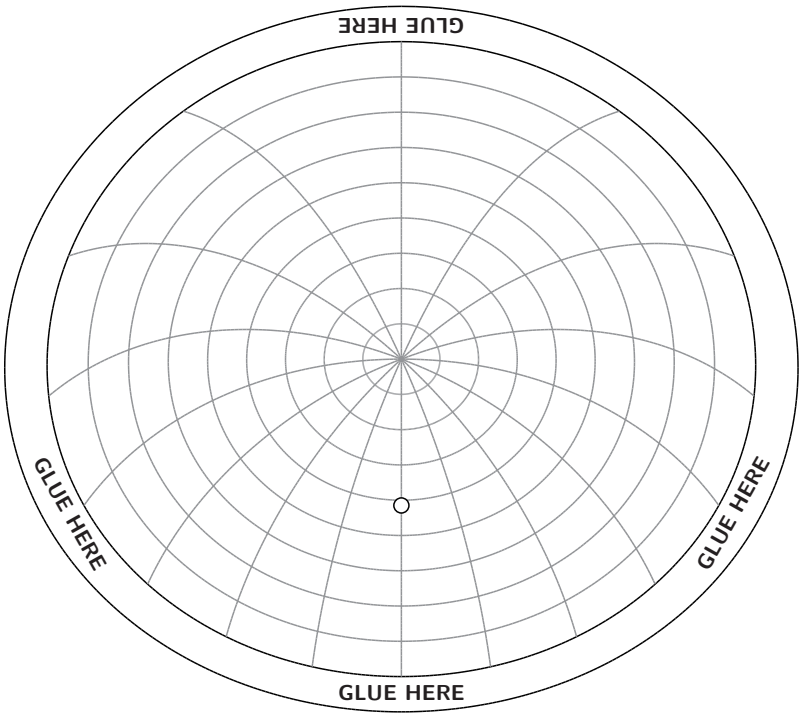

This grid of lines can optionally be printed onto transparent plastic and glued into the cut out window in the planisphere's body to show the altitudes of objects in the sky, and their directions.